

## WEST

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Nov 29, 2001

DERWENT-ACC-NO: 2002-215547

DERWENT-WEEK: 200305

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**TITLE:** Cleaning apparatus for semiconductor wafers includes movable marangoni dryer having hood for moving the wafers from loader into inner bath

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**PATENT-ASSIGNEE:**

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**PRIORITY-DATA:** 2001KR-0006986 (February 13, 2001), 2000KR-0018900 (April 11, 2000)

**PATENT-FAMILY:**

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20010045223 A1	November 29, 2001		015	B08B007/04
DE 10118167 A1	January 3, 2002		000	H01L021/302
JP 2002016038 A	January 18, 2002		008	H01L021/304
KR 2001096566 A	November 7, 2001		000	H01L021/304

**APPLICATION-DATA:**

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20010045223A1	April 11, 2001	2001US-0832330	
DE 10118167A1	April 11, 2001	2001DE-1018167	
JP2002016038A	April 11, 2001	2001JP-0113142	
KR2001096566A	February 13, 2001	2001KR-0006986	

**INT-CL (IPC):** B08 B 7/04; H01 L 21/302; H01 L 21/304; H01 L 21/68

**ABSTRACTED-PUB-NO:** US20010045223A

**BASIC-ABSTRACT:**

**NOVELTY** - A semiconductor wafer cleaning apparatus has loading unit with cassette mounted with semiconductor wafers; moving mechanism; inner bath; marangoni dryer; and knife for supporting the wafers. The marangoni dryer includes a hood for moving the wafers from the loader into the inner bath. It is movable in plus or minus X-, plus or minus Y-, and plus or minus Z-directions to be tightly sealed to the inner bath.

**DETAILED DESCRIPTION** - A semiconductor wafer cleaning apparatus comprises a loading unit (7) with cassette (5) mounted with semiconductor wafers (3); a moving mechanism

(9a-b, 11a-c) extracting and moving the semiconductor wafers into a loader (13) apart from the loading unit; an inner bath (19) apart from the loader, in which the wafers are cleaned with a cleaning solution; a marangoni dryer (23) including a hood for moving the wafers from the loader into the inner bath; and a knife (21) supporting and moving the wafers. The marangoni dryer is movable in plus or minus X-, plus or minus Y-, and plus or minus Z-directions to be tightly sealed to the inner bath. An INDEPENDENT CLAIM is also included for a method of cleaning a semiconductor wafer comprising loading a cassette into a loading unit, extracting the semiconductor wafers held on the cassette, moving the extracted wafers into the loader, mounting the wafers from the loader into the marangoni dryer, moving the marangoni dryer into an inner bath, moving the wafers from the dryer into the bath, cleaning the wafers with a cleaning solution, and lifting the wafers from the inner bath while drying solution fumes are sprayed from the top of the dryer. The cleaning solution is thus removed from the wafers by surface tension differences between the drying and cleaning solutions.

USE - For cleaning semiconductor wafers.

**ADVANTAGE** - The invention is capable of drying the semiconductor wafer without exposing it to the air. It is capable of preventing occurrence of water marks

DESCRIPTION OF DRAWING(S) - The figure is a schematic perspective view of a semiconductor wafer cleaning apparatus including the marangoni dryer.

### Wafers 3

### Cassette 5

## Loading unit 7

### Moving mechanism 9a-b, 11a-c

Loader 13

Pusher 17, 18

Inner bath 19

Knife 21

### Marangoni dryer 23

CHOSEN-DRAWING: Dwg. 1/12

TITLE-TERMS: CLEAN APPARATUS -SEMICONDUCTOR WAFER MOVE DRY HOOD MOVE WAFER LOAD INNER BATH

DERWENT-CLASS: G04 P43 U11

CPI-CODES: G04-B08;

EPI-CODES: U11-C06A1B;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 02711

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2002-065800  
Non-CPI Secondary Accession Numbers: N2002-165102